Overview

The HP 8/80 SAN Switch is ideal for medium- to large-sized organizations that need a scalable, high-availability solution that will facilitate consolidation and the flexibility to meet rapidly evolving storage requirements. Whether an organization's requirements call for a standalone high port count switch, a high port count core switch, or a large building block for a tiered enterprise fabric, the 8/80 SAN Switch provides the highest performance, highest scalability, availability, and best investment protection available to meet the needs of today's consolidated virtual data center.

To support mission-critical environments, the 8/80 SAN Switch features a non-blocking architecture with as many as 80 ports concurrently active at 8 Gbit/sec full duplex with no over-subscription-providing an aggregate bandwidth of 1280 Gbit/sec. Inter-Switch Link (ISL) trunking can supply up to 64 Gbit/sec of balanced data throughput to reduce congestion and increase bandwidth. It also supports new virtualization technologies that are driving efficiency and flexibility benefits. For example, organizations that have deployed virtual server environments require higher levels of connectivity for consolidation and higher levels of performance to cost-effectively meet the demands of virtual data centers.

The 8/80 SAN Switch is an 8Gb Fibre Channel Switch and delivers up to 80 ports in a 2u footprint. The switch is available in two models with a 16 port upgrade license to add ports non-disruptively:

- HP 8/80 SAN Switch Power Pack+ with 48 active ports and value added software
- HP 8/80 SAN Switch with 48 active ports (Base)

The density of the 8/80 SAN Switch uniquely enables fan-out from the core of the data center fabric with less than half the number of switch devices to manage compared to traditional 32- or 40-port edge switches. When deployed as a core SAN fabric switch, the fully enabled 80 port SAN Switch provides a single-switch core footprint that is ideal for SAN fan-out using lower-density B-series switches. This single-domain solution is ideal for environments that have high port count needs but do not require the capabilities of a director-class fabric core.

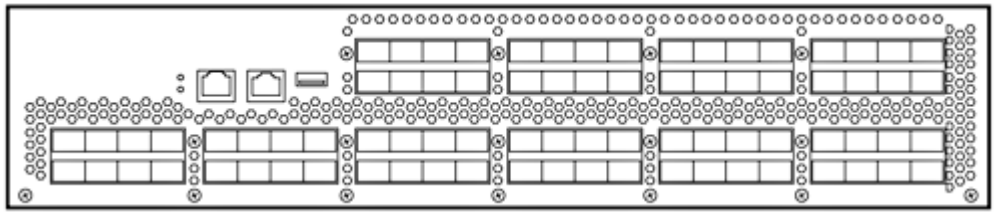
The 8/80 SAN Switch provides a reliable SAN foundation by employing enterprise-class availability features such as hot-swappable, redundant, and integrated fan and power supply assemblies. Moreover, hot code load and activation help maximize application uptime with faster system upgrades and maintenance to reduce the dependency on scheduled outages. Combined with a wide range of diagnostic and monitoring functions, these capabilities help provide a highly available SAN environment.

As an option for connecting switches in a fabric, the 8/80 SAN Switch provides Fibre Channel Integrated Routing capabilities. Integrated Routing provides native Fibre Channel Routing on a per-port basis rather than limiting routing to special-purpose routing switches or blades. Integrated Routing uses EX_Ports to import/export devices between fabrics, enabling selective device sharing while maintaining remote fabric isolation for higher levels of scalability and fault isolation

The 8/80 SAN Switch Power Pack+ includes the 8/80 SAN Switch (Base) with additional software: Fabric Vision, Fabric Watch, ISL Trunking, Extended Fabric and Performance Monitor. Power Pack+ software provides the SAN administrator with the necessary tools to monitor the health and performance of the network, while also ensuring the highest levels of security, scalability and manageability. Power Pack+ software enables infrastructure management through a single-pane-of-glass.

The 8/80 SAN Switch enables organizations to use 4 Gbit/sec SFPs today and upgrade to 8 Gbit/sec SFPs, so they can fully leverage their existing IT resources and seamlessly incorporate new capabilities as necessary.

Overview



What's New

- New RoHS compliant HP SAN switches

NOTE: Restriction of Hazardous Substances Directive or RoHS is a directive adopted by the European Union that restricts the use of certain hazardous materials in the manufacture of various types of electronic and electrical equipment. The RoHS compliant products with new part numbers listed in this document are functionally equivalent to the corresponding products with old part numbers and are fully interchangeable.

Key Features and Benefits

- Offers best-in-class port density and scalability for enterprise SAN switches
- Delivers full 8 Gbit/sec 1:1 performance for up to 80 ports in a single-domain, optimized 2U form factor
- Increases network performance with enhanced Inter-Switch Link (ISL) Trunking, which enables a high-speed data path up to 64 Gbit/sec
- Protects existing device investments with auto-sensing 1, 2, 4, and 8 Gbit/sec capabilities
- Features Ports on Demand capabilities for fast, easy, and cost-effective scalability from 48 to 80 ports in 16-port increments
- Meets high-availability requirements with redundant, hot-pluggable components, non-disruptive software upgrades, and hot code activation for a wide range of SAN configurations
- Provides Adaptive Networking services such as Quality of Service (QoS) to help optimize application performance in consolidated, virtual environments
- Leverages intelligent B-series SAN management and monitoring tools to increase operational efficiency and maximize SAN investments.

Product Highlights

8/80 SAN Switch

- Simplifies enterprise SAN deployment by combining higher port count density with exceptional scalability, performance and reliability
- Delivers 48, 64, or 80-ports in a 2U enclosure
- Meets enterprise level availability requirements with redundant, hot pluggable components, no-single-points-of-failure within the switch
- Provides 1 Gb, 2 Gb, 4Gb, 8Gb/s* performance
- Employs optional Inter-Switch Link (ISL) Trunking to provide a high-speed data path between switches which enables a high speed data path between 8Gb/s switches up to 64 Gbit/sec

*Full 8Gb/s end to end storage performance requires 8 Gb/s HBAs, 8Gb/s controllers, and 8Gb/s switches. 8Gb/s ISL performance can be obtained between two 8Gb/s switches.

Configuration Support

http://h18000.www1.hp.com/products/storageworks/san/documentation.html

High-availability features

- Redundant, hot swappable cooling fans
- Redundant, hot swappable power supplies
- Enhanced Fault Detection Logic

Parity protection on all data paths and system memory

Advanced Fabric Services

- Hardware and Software Enforced Zoning
- Frame Filtering
- Built-in Web browser management tools
- SAN Network Advisor (optional)
- Enhanced Group Management (EGM)

Cabinet Support

- HP 9000 and 10000 G1 Series (22U, 36U and 42U), HP System/e (25U, 33U and 41U), and HP 10000 G2 Series (22U, 36U, and 42U) and Intelligent Series racks.
  NOTE: To order factory integration, add 0D1 after the part number on your sales order.

Software Components, Standard, Base Models

Frame Filtering

An ASIC based capability that enables new applications and features. The switch has the ability to "view" the first 64 bytes of the Fibre Channel frame. At this time, Frame Filtering enables advanced capabilities such as Advanced Zoning and Advanced Performance Monitoring.

Advanced Zoning

WWN Zoning and Access Control are enforced by hardware that provides the same simple administration previously enforced only with software. Administrators can organize a physical fabric into logical groups and prevent unauthorized access by devices outside the Zone.

Web Tools

Web Tools is an intuitive and easy-to-use graphical interface that enables organizations to monitor and manage SAN fabrics. Tasks can be performed through a Java-capable Web browser from a standard laptop, desktop PC or workstation from any location within the enterprise.

Product Highlights

EGM

Enhanced Group Management (EGM) is a FOS license that is included with all B-Series switches and enables multi-switch operations. It helps automate operations across multiple switches to save time and streamline repetitive operations, which are typically prone to error. EGM drives consistency across fabrics, while minimizing the risk associated with potential downtime due to configuration mismatches. EGM provides streamlined troubleshooting for more effective fabric monitoring and diagnosis.

Both Data Center Fabric Manager Professional and Enterprise enable EGM functionality. Customers have EGM functionality enabled within the hardware product and need only to make the decision around which management application is right for them - Data Center Fabric Manager Professional, Professional Plus or Enterprise.

Adaptive Networking

Adaptive Networking (AN) is an optional family of technologies which allow flexible control of traffic movement within the fabric which deliver application aware management of fabric resources. Applications may be used with multiple protocols and multiple classes of service. It includes the following features:

Ingress Rate Limiting:

Allows the ingress bandwidth of a port to be throttled to a rate lower than negotiated with the SAN node. This could be very useful for enterprises offering stepped levels of service and enforcing SLAs.

Quality of Service (QoS):

Enables zones with high, medium, and low priorities within a fabric on a zone by zone basis. This can be very useful for prioritizing array replication over MANs and WANs over less critical traffic.

Traffic Isolation Zones:

Defines paths through a fabric for some or all nodes. Failover allows a non-preferred path to be used if the preferred fails. TIZs use failover by default but it can be disabled if traffic should stop if a preferred path fails. TIZ can be used to manually map out traffic flows within a fabric based on application, priority, and topology.

Server Application Optimization

Server Application Optimization (SAO) license improves overall application performance for physical servers and virtual machines. SAO, when deployed with B-Series Fibre Channel HBAs, extends B-Series Adaptive Networking from the B-series SAN fabric to the server infrastructure. This delivers application-level, fine-grain Quality of Service (QoS) management to the HBAs and related server applications.

Solution Requirements:

- SAO license must be installed on the edge (server connected) switch
- Adaptive Networking (AN) license must be installed on the edge (server connected) switch
- SAO requires B-series HBA installed in the server

Product Highlights

Software Components, Optional

8/80 SAN Switch Power Pack+ Software Bundle

The Power Pack+ Software Bundle comes with the 8/80 SAN Switch Power Pack+ or as an optional software bundle for the 8/80 SAN Switch. It includes the following:

- Fabric Vision
- Fabric Watch
- Performance Monitor
- Extended Fabric
- ISL Trunking

Fabric Vision

Fabric Vision offers innovative diagnostic, monitoring and management capabilities to help accelerate new application deployments, address SAN problems before they impact operations and reduce operational costs. It Includes

- Monitoring and Alerting Policy Suite: A policy-based monitoring tool with pre-built rules and automation that simplifies fabric-wide threshold configuration and monitoring.
- Flow Vision: A comprehensive tool that enables administrators to identify, monitor, and analyze specific application data flows without using taps to ensure optimized performance
- Health and performance dashboard: A single customizable screen displayed in HP SAN Network Advisor that contains all critical SAN information for convenient review and analysis.

Fabric Vision will be included by default in all HP StoreFabric B-series Fibre Channel switches and Directors bundled with Power Pack+ (with FOS 7.2.0a and later). In all other cases, Fabric Vision can be enabled on HP StoreFabric B-series Fibre Channel switches and Directors in any one of the following ways

- Application of the Fabric Vision LTU (FOS 7.2.0a and later)
- Application of the Power Pack+ LTU (FOS 7.2.0a and later)
- Upgrading existing Switch/Director loaded with Power Pack+ to FOS 7.2.0a or later
- Upgrading existing Switch/Director loaded with both Advanced Performance Monitor (APM) and Fabric Watch (FW) licenses to FOS 7.2.0a or later

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Fabric Watch

Fabric Watch is an optional license which enables each switch to monitor the SAN for potential faults and automatically alert network managers to problems before they become failures. Fabric Watch tracks a variety of SAN fabric elements, events, and counters. Monitoring fabric-wide events, ports, SFPs, and environmental parameters permits early fault detection and isolation as well as performance measurement. Each switch in the SAN needs its own Fabric Watch license.

Advanced Performance Monitor

This optional enabling technology helps administrators monitor and watch specific fabric metrics -- from a SID (Source ID) to a DID (Destination ID) -- so they can fine-tune and scale the fabric more efficiently. Plus, Advanced Performance Monitoring includes the ability for early warning detection of hot spots within the fabric, a powerful tool for maintaining overall balanced performance.

Top Talkers is a component of Advanced Performance Monitoring and tracks the top traffic flows for hosts and targets for a switch port or a switch. Top Talkers can help identify the ports that need certain Quality of Service (QoS) attributes or it can help determine portions of the physical topology that need reconfiguration.

Product Highlights

Extended Fabric	Optional license which extends all of the scalability, reliability, and performance benefits of Fibre Channel Storage Area Networks (SANs) beyond the native 10 km distance specified by the Fibre Channel standard.
FICON Support	Optional license which enable host control of switches in mainframe environments
SAN Network Advisor Professional	HP SAN Network Advisor Professional is a management application available at no-charge and comes with B-series SAN Switches and: • Allows management of a single Fabric OS (FOS) fabric (up to a 1,000 switch ports) at a time • Performs group switch management beyond the scope of Web Tools • Does not offer management of the SN8000B 8-Slot or DC SAN Backbone Directors It is targeted for SMB customers that use FOS based SAN fabrics and require a management solution for smaller SANs based on a single fabric. SMB customers that initially start off with SAN Network Advisor Professional and have a small SAN environment may over time feel the need for an enterprise-class product (SAN Network Advisor Enterprise) as their environments start to grow in size and complexity, and as they start to uptake more enterprise-class functionality (such as Fibre Channel Routing, FCIP, etc.). A non-disruptive upgrade path is available from SAN Network Advisor Professional to SAN Network Advisor Enterprise.
SAN Network Advisor Enterprise and Professional+	HP SAN Network Advisor Enterprise and Professional+ are the enterprise-class products that support FOS products as well as FOS and M-EOS products together. SAN Network Advisor Enterprise provides complete SN8000B 8-Slot Director and DC SAN Backbone Director management including enterprise-class features/environments such as FICON, Fibre Channel Routing, FCIP, adaptive networking, etc while HP SAN Network Advisor Professional+ provides the same feature set except for support for the SN8000B 8-Slot Director, DC SAN Backbone Director, and FICON. HP SAN Network Advisor Enterprise delivers unprecedented scalability, up to 24 fabrics and 9,000 switch ports, while HP SAN Network Advisor Professional+ scales to 4 SAN Fabrics and 2560 switch ports. To accommodate growth, there is an upgrade available to SAN Network Advisor Enterprise from SAN Network Advisor Professional Plus. Both offerings provide brand-new features including Adaptive Networking features for quality of service, ingress rate limiting and traffic isolation zones.
ISL Trunking	For high performance enhanced Trunking, this optional license logically groups up to four E-ports to provide a high bandwidth trunk between two switches. Each 8 Gb switch needs its own license. The switch operating system views the trunk as a single, high bandwidth resource (up to 64 Gb) when routing connections between 8Gb switches. Connections are load-balanced across the individual links, which comprise the logical trunk group.
Integrated Routing	Integrated Routing is an optional license which provides native Fibre Channel Routing (FRC) on a per-port basis, rather than limiting routing ports to those on a dedicated routing blade or switch. Just like traditional FCR, Integrated Routing uses EX_Ports to import/export devices between fabrics, enabling selective device sharing while maintaining remote fabric isolation. Integrated Routing provides architecture flexibility to route on a port-by-port basis, enabling increased scalability and fault isolation.

Service and Support, HP Care Pack, and Warranty Information

Warranty

(1-1-1) Hardware Warranty - One-year on-site warranty, normal business hours, next business day response, installation not included.
NOTE: The hardware warranty covers firmware and embedded non-saleable software.
Saleable software carries its own warranty, see below.
Software Warranty - HP warrants only that the software media will be free of physical defects for a period of ninety (90) days from delivery.

EXCLUSIVE REMEDY: The entire liability of HP and its suppliers and your exclusive remedy for software that does not conform to this Limited Warranty shall be the repair or replacement of the defective media. This warranty and remedy are subject to your returning the defective media during the warranty period to HP in the country in which you obtained the software.

For bundled Software Support

Your HP storage product includes comprehensive support and software updates to enhance the performance and availability of your software. Experienced Response Center engineers provide trustworthy advice on issues such as software features and use, problem diagnosis and resolution, and software defect identification.

Software support benefits include:

- Improved productivity of system managers and operators
- Improved system performance and reduced downtime due to software defects
- Expedited problem resolution through expert-level technical resources
- Software and documentation updates
- Electronic access to essential product and support information

For increased uptime, productivity and ROI -HP Care Pack packaged services for Storage

These days, you need to get the most out of your storage investment-you can't afford not to. When you buy HP storage products and solutions, it's also a good time to think about what levels of service and support you may need. To help take the worry out of deploying, designing, maintaining, and managing your environment, we've designed a portfolio of service options that are as: flexible, reliable and scalable as your storage. Unlike storage-only vendors, we take a holistic approach to your entire environment, bridging storage, servers, blades, software and network infrastructures with our HP Care Pack packaged services for Storage.

Protect your business beyond the warranty
When it comes to robustness and reliability, standard warranties on today's computing equipment have matured just as the technologies have matured. Good news on some fronts-but also a source of potential problems and subsequent consequences that come from depending on standard warranties alone. Standard warranty protects against product defects and some causes of downtime- but not the business. By using a standard approach to warranty uplifts, such as HP Care Pack Services, you can reduce downtime risks and be more certain of operational consistency for both mission-critical and standard business computing. Simply put, HP Care Pack Services normalize the warranty of combined products - helping you proactively guard against unplanned downtime.

Extending warranties with HP Care Pack Services

For cost-effective upgrading or extending your standard warranty, HP Care Pack Services offer a suite of standard reactive hardware and software support services that are sold separately, or combined as with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition, with HP Proactive Select we offer an innovative approach to service delivery that gives you the flexibility to acquire the specific proactive services you need today, then add services as your needs evolve. HP Proactive Select offers a broad set of technical or per-event type service options - including server, storage, and network, SAN device, and software, environment, installation and education services. Services that you can mix and match depending on your specific requirements, from preliminary planning and equipment

Service and Support, HP Care Pack, and Warranty Information

delivery to installation, configuration, integration, and testing, through every level of ongoing support. Our HP Care Pack packaged services for Storage assures help when you need it most. And for many products, post-warranty HP Care Pack Services are available when your original warranty has expired.

HP Storage Services: Offering reliability, flexibility and value-just like your storage

HP Storage Services offers a full spectrum of customer care, from technology support to complex migrations to complete completely managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education offers flexible, comprehensive training on storage networking, disk storage systems, and storage software to help your IT staff get the most out of your investments. And HP Financial solutions extend innovative financing and asset management programs to cost-effective buy, manage and eventually retire your older equipment.

HP Storage Services, the trusted business technology experts who manage your technology in action, because when technology works, business works. http://www.hp.com/services/storage

NOTE: Care Pack Services availability may vary by product and country.

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at: http://h30125.www3.hp.com/csn/salesmktg/elfpack/elf_nonlkup_ctrylang.asp?code=ELNL

Recommended HP Care Pack Services for optimal satisfaction with your HP product.

Recommended Support 3-Year HP Support Plus 24

For a higher return on your storage investment, HP Support Plus 24 provides integrated hardware and software support services designed specifically for your technology. Available 24x7, this 3-year combined reactive support option delivers onsite hardware support and over-the-phone software support around-the-clock. Leverage the full strength of HP Technology Services - customers can trust the services professionals at HP to work collaboratively with them, putting our strategic and technical know-how to work across their entire infrastructure.

- Improve uptime with responsive hardware and software services
- Cost-effectively obtain expert multivendor support
- Enjoy consistent service coverage across geographically dispersed sites
- Update HP and selected third-party software at a predictable cost
- Take advantage of subscription savings on software updates
- Increase revenue-with access to world-class expertise without headcount implications
- Increase customer satisfaction-with no interoperability gaps

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EN.pdf

Recommended Deployment HP Enhanced Implementation Service for SANs

For customers who are building a new SAN or expanding their existing one, we offer the HP Enhanced Implementation Service for SANs. This provides complete design and implementation services for Fibre Channel, FCOE, FCIP, SAS and iSCSI SAN connectivity components. Covering all major SAN connectivity technologies including virtual as well as physical hosts, no competitor offers a more complete end to end SAN design and implementation service, ensuring comprehensive optimal SAN connectivity tailored to your specific environment.

- Ensures optimal SAN connectivity tailored to your specific environment.
- Allows your IT resources to stay focused on their core tasks and priorities
- Reduces implementation time, impact and risk to your storage environment
- Helps ensure a successful implementation for complex deployments by providing HP project management

http://h20195.www2.hp.com/v2/GetPDF.aspx/5981-8527EN.pdf

Related HP Care Pack Services that will enhance your HP product experience.

Related Services

3-Year HP Proactive 24 for SANs

As an alternative to our recommended support level, for customers who want improved SAN availability and access to a wide range of proactive and reactive services:

HP Proactive 24 Service for SANs is an integrated hardware and software support service that combines proactive problem prevention with responsive 24x7 assistance for rapid problem resolution.

A collaborative relationship with HP Services strengthens your IT team and gives you direct access to our technical expertise as issues arise.

Improve IT staff skills, increase SAN productivity.

Proactive 24 Service for SANs can help you:

- Enhance the skills and efficiency of your IT staff through knowledge transfer, shared best practices in storage management, and hands-on assistance
- Improve SAN availability through access to a wide range of proactive and reactive services
- Boost productivity through effective change management, configuration assistance, and performance optimization
- Increase the return on your SAN investment
- Enhance your overall operational effectiveness

Expert single-point-of-contact assistance 24x7

An assigned HP Services account manager is your primary contact for proactive services and access to HP's diverse technical resources. Your account manager works closely with your IT staff to understand your goals, document the components of your infrastructure, recommend changes to improve performance and stability, and monitor ongoing operations through HP's industry-leading remote monitoring and support tools.

http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6887EN.pdf

HP Assessment Service for SANs

For customers interested in improving availability of their SAN and decreasing potential for unplanned downtime:

The HP Assessment Service for SANs offers customized technical and operational guidance to customers employing HP storage subsystems and the interconnecting storage area network (SAN) infrastructure. In a typical engagement, HP or one of our authorized business partners will perform a detailed discovery using

Service and Support, HP Care Pack, and Warranty Information

HP's proprietary toolset to gain an understanding of the configuration of your storage devices and SAN topology.

The findings from this process will be compared to HP best practices and industry standards as defined by IT Service Management (ITSM) disciplines. The results of the evaluation will be quickly and efficiently processed into information you can leverage. This information, in the form of a comprehensive HP SAN Assessment report, will be summarized by HP or one of our authorized business partners with recommendations that are intended to improve availability levels and ongoing management of your storage and SAN environment.

http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA1-2941ENW.pdf

eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

Support Portal
The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: http://www.hp.com/support

Remote Support Technology (RST)-HP Remote Support Pack
Taking a more proactive approach to IT support, the HP Remote Support pack plug-in module easily integrates with HP Systems Insight Manager to provide a powerful, unified "single pane of glass" solution for onsite and remote management.

HP Remote Support Pack enhances HP Systems Insight Manager with intelligent event diagnosis plus the automatic submission of hardware event notifications securely to HP support, including acknowledgment and status returns. It adds remote configuration collections to allow the delivery of assessment and proactive services for your SAN storage and HP-UX environments.

Customer Technical Training

Consider education as an integral part of your strategy to get the best return on investment for your HP storage solution. HP offers a variety of training courses on storage software, networking, archiving and disk storage systems. Our classes are available in many delivery modalities from traditional instructor-led courses at one of our 80 training centers worldwide to on-site training customized to your needs or online. www.hp.com/learn/storage

Service and Support, HP Care Pack, and Warranty Information

HP Services Awards

HP Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit:
http://h20219.www2.hp.com/services/cache/433028-0-0-225-121.htm

Additional Services Information

For more information about HP Care Pack Services for Storage, please visit:
http://www.hp.com/services/storage

If you have specific questions, contact your local HP representative. Contact information for a representative in your area can be found at "Contact HP" http://www.hp.com

Family Information

Features	8/8 SAN Switch Base and 8/8 SAN Switch	8/24 SAN Switch Base	8/80 SAN Switch and 8/80 SAN Switch Power Pack+	SN6000B 16Gb FC Switch and SN6000B 16Gb FC Power Pack+
Targeted Environment	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments	Workgroups, Departments
Fibre Channel Port Bandwidth	8Gbit/sec	8Gbit/sec	8Gbit/sec	16Gbit/sec
Aggregate device bandwidth	128 - 384 Gbit/sec end-to-end	256 - 384 Gbit/sec end-to-end	768 - 1280 Gbit/sec end-to-end	384 - 768 Gbit/sec end-to-end
OS Support	**NOTE:** Please Refer to SAN Design Guide http://www.hp.com/go/sandesign or http://www.hp.com/go/sandesignguide			
Storage system support	**3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA**			
FC Ports	8 Enabled 24 Max	16 Enabled 24 Max	48 Enabled 80 Max	24 or 48 Enabled 48 Max
SFP	B-series	B-series	B-series	B-series
Advanced Trunking	Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade
Adaptive Networking	Included	Included	Included	Included
Form factor	1U	1U	2U	1U
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	No	No	Yes	Yes
Hot plug fans	No	No	Yes	Yes (integrated with power supply)

Features	1606 Extension SAN Switch	Encryption SAN Switch
Targeted Environment	Data Centers	Data Centers
Fibre Channel Port Bandwidth	8Gbit/sec	8Gbit/sec
Ethernet	1Gbit/sec Ethernet	N/A
Aggregate device bandwidth		512 Gbit/sec end-to-end
OS Support	**NOTE:** Please Refer to SAN Design Guide http://www.hp.com/go/sandesign or http://www.hp.com/go/sandesignguide	
Storage system support	**3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA**	
FC Ports	4 or 16 Enabled 16 Max	32 Enabled 32 Max
Ethernet Ports	2 or 6 Enabled 6 Max	N/A
SFP	B-series	B-series
Advanced Trunking	Included with Power Pack+ or Optional Upgrade	Optional Upgrade
Adaptive Networking	Included	Included

Family Information

Form factor	1U	2U
Zoning Software	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	Yes	Yes
Hot plug fans	Yes	

Features	SN8000B 8-Slot SAN Director Power Pack+	SN8000B 4-Slot SAN Director and 4-Slot SAN Director Power Pack+	DC SAN Backbone Director Power Pack+	DC04 SAN Director and DC04 SAN Director Power Pack+
Targeted Environment	Cloud Optimized Data Centers	Cloud Optimized Data Centers	Traditional Data Centers	Traditional Data Centers
Port Bandwidth	Up to 16Gbit/sec	Up to 16Gbit/sec	8Gbit/sec	8Gbit/sec
Aggregate device bandwidth	8.2 Tbit/sec end-to-end	4.1 Tbit/sec end-to-end	4.1 Tbit/sec end-to-end	2 Tbit/sec end-to-end
OS Support	**NOTE:** Please Refer to SAN Design Guide http://www.hp.com/go/sandesign or http://www.hp.com/go/sandesignguide			
Storage system support	**3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA**			
Ports	Up to 512 SFP	Up to 256 SFP	Up to 512	Up to 256
SFP	B-series	B-series	B-series	B-series
Advanced Trunking	Included with Power Pack	Included with Power Pack or Optional Upgrade	Included with Power Pack+	Included with Power Pack+ or Optional
Adaptive Networking	Included	Included	Included	Included
Form factor	14U	9U	14U	9U
Zoning Software	Yes (included)	Yes (included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	Yes	Yes	Yes	Yes
Hot plug fans	Yes	Yes	Yes	Yes

Features	Brocade 16Gb SAN Switch for HP c-Class BladeSystem	Brocade 8Gb SAN Switch for HP c-Class BladeSystem	B-Series Multi-protocol Router Blade	B-Series Multi-protocol Extension Blade
Targeted Environment	Datacenters, Workgroups, Departments	Workgroups, Departments	Data Centers	Data Centers
Port Bandwidth	16Gbit/sec	8Gbit/sec	4 Gbit/sec FC Ethernet: 1 Gbit/sec	8 Gbit/sec FC Ethernet: 1 or 10 Gbit/sec
Aggregate device bandwidth	896 Gbit/sec full duplex	384 Gbit/sec end-to-end	N/A	N/A
OS Support	**NOTE:** Please Refer to SAN Design Guide http://www.hp.com/go/sandesign or http://www.hp.com/go/sandesignguide			
Storage system Support	**3PAR StoreServ, StoreVirtual 4000, P9000/XP, P6000/EVA, P2000/MSA**			
Ports	12 external /16 internal	4 or 8 external / 8 or 16 internal	18 ports: 16 FC and 2 Gigabit Ethernet	16 8Gb FC and 10 1GbE or 2 10GbE

Family Information

SFP	B-series	B-series	HP	B-series
Advanced Trunking	Included with Power Pack+ or Optional Upgrade	Included with Power Pack+ or Optional Upgrade	Optional Upgrade to chassis	Optional Upgrade to chassis
Adaptive Networking	Included	Included	Included	Included
Form factor	Embedded	Embedded	Blade in 4/256, DC SAN Back, or DC04 SAN Dir	Blade in SN8000B and DC SAN Directors
Zoning Software	Yes (Included)	Yes (Included)	Yes (Included)	Yes (Included)
Hot plug, redundant power supplies	Yes, in BladeSystem Enclosure	Yes, in BladeSystem Enclosure	Yes, in director chassis	Yes, in director chassis
Hot plug fans	Yes, in BladeSystem Enclosure	Yes, in BladeSystem Enclosure	Yes, in director chassis	Yes, in director chassis

Configuration Information

Step 1 - Base Configuration

Select one:

Model	Model Description	Part Number
8/80 Power Pack+, 48 Full Fabric Ports Enabled, SAN Switch		AM872B
	8/80 SAN Switch with 48 active ports; rackmount kit; accessory kit (enterprise safety and regulatory information, installation guide, rack-mounting instructions), power cords, serial cable, base software of Advanced Fabric OS, Advanced Web Tools, Advanced Zoning, and Power Pack+ software of Adaptive Networking, ISL Trunking, Extended Fabric, Advanced Performance Monitoring, Server Application Optimization, and Fabric Watch. **NOTE:** Requires optical transceivers listed below.	
8/80 Base (48) Full Fabric Ports Enabled SAN Switch		AM871B
	8/80 SAN Switch with 48 active ports; rackmount kit; accessory kit (enterprise safety and regulatory information, installation guide, rack-mounting instructions), power cords, serial cable, and base software of Advanced Fabric OS, Advanced Web Tools and Advanced Zoning. **NOTE:** Requires optical transceivers listed below.	
8/80 SAN Switch 8Gb 16-port Upgrade LTU		T5520A
	16 port upgrade license for 8/80 Power Pack+ SAN Switch (AM872B) and 8/80 Base SAN Switch (AM871B)	

Step 2 - Options

	Model Description	Part Number
8 Gb Transceivers	HP 8Gb Shortwave B-series Fibre Channel 1 Pack SFP+ Transceiver	AJ716B

Distance-Maximum	OM2 Cable	OM3 Cable	PremierFlex Cable
8Gb performance:	50 meters	150 meters	150 meters
4Gb performance:	150 meters	380 meters	380 meters
2Gb performance:	300 meters	500 meters	500 meters

	HP 8Gb Long Wave B-series 10km Fibre Channel 1 Pack SFP+ Transceiver	AJ717A
	HP B-series 8Gb Extended Long Wave 25km Fibre Channel SFP+ Transceiver 1 Pack	AW538A
4 Gb Transceivers	HP 4Gb Short Wave B-series Fibre Channel 1 Pack SFP Transceiver	AJ715A

Distance-Maximum	OM2 Cable	OM3 Cable	PremierFlex Cable
4Gb performance:	150 meters	380 meters	380 meters
2Gb performance:	300 meters	500 meters	500 meters
1Gb performance:	500 meters	860 meters	860 meters

	HP 4Gb Long Wave B-series 30km Fibre Channel SFP Transceiver 1 Pack	AN211A
Optical Cables	**HP PremierFlex OM4+ Fiber Optic Cables**	
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A

Configuration Information

	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A
	OM3 LC-LC type cables	
	HP LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
	HP LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
	HP LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
	HP LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
	HP LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
	HP LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
	HP LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A
Accessories	HP B-Series Switch Rack Mount Kit	A7511A
	NOTE: When any of the switch models listed above is ordered, an accessory kit which contains the Rack Mount Kit is included in the package by default. A7511A is required only when the original accessory kit or Rack Mount Kit is unavailable.	

Step 3 - Optional Software*

* For Fabric OS (FOS) minimum requirements, please refer to: http://spock.corp.hp.com/

Software for 8/80 SAN Switch	HP B-series SAN Network Advisor Enterprise LTU	TC352A
	HP B-series SAN Network Advisor Professional Plus LTU	TC353A
	HP B-series SAN Network Advisor Professional Plus Upgrade LTU	TC354A
	HP B-series 48-80 Port SAN Switch Power Pack+ Upgrade LTU	T5523A
	NOTE: The Power Pack+ Software Bundle kit includes Fabric Vision, Fabric Watch, ISL Trunking, Extended Fabric and Advanced Performance Monitor. **NOTE:** Adaptive Networking and Server Application Optimization features are included by default in the switch firmware (FOS 7.2.0a or later) and do not require a separate license	
	HP StoreFabric B-series 8Gb and 16Gb High End Switch Fabric Vision LTU	TC511A
	Extended Fabric SAN Switch 2/32	313458-B21
	Fabric Watch SAN Switch 2/32	313454-B21
	Advanced Performance Monitor SAN Switch 2/32	313450-B21
	ISL Trunking SAN Switch 2/32	313452-B21
	HP B-series 48-80-port SAN Switch Integrated Routing RTU	T5529A
	HP Intelligent Infrastructure Analyzer Software v2 LTU	TC472A
	HP Intelligent Infrastructure Analyzer Software v2 E-LTU	TC472AAE

HP 80 SAN Switch FICON CUP LTU	HP B-series 48-80-port SAN Switch FICON CUP LTU	TC320A
	FICON Management Server: Control Unit Port (CUP) enables host control of switches in mainframe environments	

Fibre Channel Standards And Revisions	FC-FG Rev 3.5	FC-AL Rev. 4.5	FC-FLA Rev 2.7	FC-PLDA Rev 2.1	FC-VI Rev 1.5
	FC-PH-2 Rev 7.4	FC-GS-2 Rev 5.3	FC-PH-3 Rev 9.4	FC-SW Rev 3.3	IPFC RFC 2625
	FC-AL-2 Rev. 7.0	FC-PH Rev 4.3			

Technical Specifications

System Architecture	**Fibre Channel ports**	80 ports, universal (E, F, and FL)
	Scalability	Full fabric architecture: http://h18006.www1.hp.com/products/storageworks/san/documentation.html
	Certified maximum	Refer to SAN Design Guide for current configuration information: http://h18006.www1.hp.com/products/storageworks/san/documentation.html
	Interoperability	• 4/8 SAN Switch • 4/16 SAN Switch • 4/32 SAN Switch • 4/64 SAN Switch • Core Switch 4/64 • DC04 SAN Director • DC SAN Backbone Director • MSA SAN Switch 2/8 • SAN Switch 8/8 • SAN Switch 8/24 • SAN Switch 8/40 • SAN Switch 8/80 • Encryption SAN Switch • 2408 FCoE Converged Network Switch • 1606 Extension SAN Switch • Brocade 4Gb SAN Switch for c-class HP BladeSystem • Brocade 8Gb SAN Switch for HP BladeSystem c-Class • 400 MP Router • HP MP-Router • SN8000B Director • SN6500B Fibre channel Switch • SN6000B Fibre Channel Switch • SN3000B Fibre channel Switch
	Performance	1.063 Gbit/sec line speed, full duplex; 2.125 Gbit/sec line speed, full duplex; 4.25 Gbit/sec line speed, full duplex; 8.5 Gbit/sec line speed, full duplex. Auto-sensing of 1 Gbit/sec, 2 Gbit/sec, 4 Gbit/sec ,and 8 Gbit/sec port speeds; optionally programmable to fixed port speed. Speed-matching between 1, 2, 4, and 8 Gbit/sec ports.
	ISL Trunking	Up to eight 8 Gbit/sec ports per ISL trunk; up to 64 Gbit/sec per ISL trunk
	Aggregate bandwidth	1360 Gbit/sec full duplex (80 ports x 8.5 Gbit/sec x 2)
	Fabric latency	2100 nanoseconds with no contention, cut-through routing at 8 Gbit/sec
	Maximum frame size	2112-byte payload
	Classes of service	Class 2, Class 3, Class F (inter-switch frames)
	Port types	FL_Port, F_Port, E_Port, EX_Port, M_Port (Mirror Port), and self-discovery based on switch type (U_Port).
	Data traffic types	Fabric switches supporting unicast, multicast (255 groups), and broadcast

Technical Specifications

	Media types	Hot-pluggable, industry-standard Small Form Factor Pluggable (SFP), LC connector; Short-Wave Laser (SWL), Long-Wave Laser (LWL); Extended Long-Wave Laser (ELWL); distance depends on fiber-optic cable and port speed. Supports B-series SFP (4/2/1 Gbit/sec) and/or B-series SFP+ (8/4/2 Gbit/sec) optical transceivers.
	Fabric services	Simple Name Server (SNS); Registered State Change Notification (RSCN), NTP v3, Reliable Commit Service (RCS), Dynamic Path Selection (DPS), Advanced Zoning (default zoning, port/WWN zoning, broadcast zoning), NPIV, FDMI, Management Server, Enhanced Group Management ; SAN Network Advisor,FSPF, Fabric Watch; Extended Fabrics; ISL Trunking; Advanced Performance Monitoring, Adaptive Networking (per-data flow QoS, Ingress Rate Limiting, Traffic Isolation, fabric dynamics profiling, application "Top Talkers" report), Server Application Optimization, Integrated Routing, IPFC
	Options	SFP media, USB Device
Management	**Management software supported**	Telnet; SNMP (FE MIB, FC Management MIB); Advanced WEB TOOLS; Enhanced Group Management ; SAN Network Advisor
	Management access	10/100 Ethernet port (RJ-45); Serial port (RS-232); in-band through Management Server
	Diagnostics	POST and embedded online/offline diagnostics
Mechanicals	**Enclosure**	Back-to-front airflow; power from back; 2U
	Size	Width: 42.88 cm (16.88 inches) Height: 8.60 cm (3.40 inches) Depth: 61.05 cm (24.00 inches)
	System Weight	34 lbs with two power supply FRUs, without SFP/SFP+ transceivers
Environment	**Temperature**	Operating: 0°C to 40°C (32°F to 104°F) Non-operating: -25°C to 70°C (-13°F to 158°F)
	Humidity	Operating: 10 to 85 percent non-condensing
	Altitude	Operating: Up to 3000 meters (9842 feet) Storage: Up to 12 kilometers (39,370 feet)
	Shock	Operating: 20 g, 6 ms half-sine Non-operating: 33 g, 11 ms, 3/eg Axis
	Vibration	Operating: 0.5 g sine, 0.4 grms random, 5 to 500 Hz Non-operating: 2.0 g sine, 1.1 grms random, 5 to 500 Hz
Airflow	**High speed**	60 CFM (cu. ft./min)
	Low speed	44 CFM
Power	**Maximum Consumption**	275 Watts (80 ports at 8 Gbit/s)
	Nominal consumption	260 Watts
	AC input voltage	85- 264 VAC, Universal
	Input line frequency	47 - 63 Hz
	Minimum input voltage	85 VAC
	Maximum input voltage	264 VAC
	Heat Dissipation	938 BTU/hr

Technical Specifications

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